UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,095	12/01/2003	Deepak Das	LUCW:0006	1760

7590 01/17/2007

Michael G. Fletcher
Fletcher Yoder
P.O. Box 692289
Houston, TX 77269-2289

EXAMINER	
FILE, ERIN M	
ART UNIT	PAPER NUMBER
2611	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/725,095	DAS ET AL.	
	Examiner	Art Unit	
	Erin M. File	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 December 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/1/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(b) because they are incomplete. 37 CFR 1.83(b) reads as follows:

> When the invention consists of an improvement on an old machine the drawing must when possible exhibit, in one or more views, the improved portion itself, disconnected from the old structure, and also in another view, so much only of the old structure as will suffice to show the connection of the invention therewith.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are incomplete as they do not illustrate a method as described in claims 8-13 and the computer readable medium as described in Claim 20.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 4, 8, 11, 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Blanchard et al. (U.S. Patent No. 5,764,690) in view of Nakada (U.S. Pub. No. 2004/0077357).

Claims 1, 8, 14, Blanchard discloses:

- a pre-whitening device adapted to apply pre-whitening data to a received signal to produce a pre-whitened signal (see col. 11, lines 6-13 describes elements 128 and 129 of fig. 9 provide pre-whitening, see fig. 1, fig. Shows that output of fig. 9 is sent to demodulators such as those in fig. 2);
- at least one detector that is adapted to recognize a pattern corresponding to a request for access in the pre-whitened signal and compute correlation data corresponding to the pattern (fig. 2 demodulators receives pre-whitened signal from fig. 9 as described above, pattern correlators see fig. 2, 80-1...N);
- a threshold detector adapted to determine whether the correlation data exceeds a threshold (col. 6, lines 1-5).

Blanchard fails to disclose the correlation data exceeds a threshold and indicates that an acknowledgement signal should be transmitted if the threshold is exceeded. However, Nakada discloses an acknowledgement signal should be transmitted if a threshold is exceeded ([0043], lines 2-5). Because the use of an acknowledgement signal allows for more accurate signal reception and processing, it would have been obvious to one skilled in the art at the time of invention to incorporate the threshold acknowledgement signal as disclosed by Nakada into the invention of Blanchard.

Claims 4, 11, Blanchard further discloses the correlation data is used to compute a maximum energy level for the pre-whitened signal (col. 4, lines 19-22).

4. Claims 2, 3, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blanchard et al. (U.S. Patent No. 5,764,690) and Nakada (U.S. Pub. No. 2004/0077357) as applied to claims 1 and 8 above, and further in view of Maeda (U.S. Patent No. 4,926,491).

Claims 2, 9, Blanchard fails to disclose the correlation data comprises a correlation matrix, however, Maeda discloses a pattern detecting method in which correlation data comprising a correlation matrix (col. 8, lines 32-35). Because the use of such pattern recognition increases the accuracy of the receiver, it would have been obvious to one skilled in the art at the time of invention to incorporate the pattern recognition as disclosed by Maeda into the combined invention of Blanchard and Nakada.

Claims 3, 10, Blanchard fails to disclose at least one detector is adapted to compute at least one maximum eigenvalue of the correlation matrix, however, Maeda discloses a

pattern detecting method in which at least one detector is adapted to compute at least one maximum eigenvalue of the correlation matrix (col. 8, lines 32-35). Because the use of such pattern recognition increases the accuracy of the receiver, it would have been obvious to one skilled in the art at the time of invention to incorporate the pattern recognition as disclosed by Maeda into the combined invention of Blanchard and Nakada.

5. Claims 5 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blanchard et al. (U.S. Patent No. 5,764,690) and Nakada (U.S. Pub. No. 2004/0077357) as applied to claims 1 and 8 above, and further in view of Agee et al. (U.S. Pub. No. 2004/0095907).

Claims 5, 12, Blanchard fails to disclose the at least one detector is adapted to recognize the pattern in a specific beam of a fixed beam network, however, adapting to recognize a pattern in a specific beam of a fixed beam network ([0062]). Because Agee discloses this has an advantage of improving communication link performance, it would have been obvious to one skilled in the art at the time of invention to incorporate the beam pattern recognition as disclosed by Agee into the combined invention of Blanchard and Nakada.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blanchard et al. (U.S. Patent No. 5,764,690) and Nakada (U.S. Pub. No. 2004/0077357) as applied to claim 1 above, and further in view of Hudson (U.S. Pub. No. 2001/0033614).

Claim 6, Blanchard fails to disclose the communication system comprises at least a portion of a cellular base station, however, Hudson discloses a cellular base station ([0038]). Because Hudson discloses the advantage of an overall bit rate increase in this method, it would have been obvious to one skilled in the art at the time of invention to incorporate the cellular base station as disclosed by Hudson into the combined invention of Blanchard and Nakada ([0038]), line 5).

7. Claims 7 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blanchard et al. (U.S. Patent No. 5,764,690) and Nakada (U.S. Pub. No. 2004/0077357) as applied to claims 1 and 8 above, and further in view of Shah et al. (U.S. Pub. No. 2006/0109779).

Claims 7, 13, Blanchard fails to disclose the pre-whitening data comprises a pre-whitening matrix, however, Shah discloses a pre-whitening matrix ([0012], line 31). Because Shah further discloses that this process allows the signal to be received without distortion ([0012], lines 12-13). Because of this advantage it would have been obvious to one skilled in the art at the time of invention to incorporate the pre-whitening matrix as disclosed by Shah into the combined invention of Blanchard and Nakada.

8. Claims 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blanchard et al. (U.S. Patent No. 5,764,690) in view of Nakada (U.S. Pub. No. 2004/0077357) and Li et al. (U.S. Patent No. 7,068,628).

Claim 15, Blanchard discloses:

- a pre-whitening device adapted to apply pre-whitening data to a received signal to produce a pre-whitened signal (see col. 11, lines 6-13 describes elements 128 and 129 of fig. 9 provide pre-whitening, see fig. 1, fig. Shows that output of fig. 9 is sent to demodulators such as those in fig. 2);
- at least one detector that is adapted to recognize a pattern corresponding to a request for access in the pre-whitened signal and compute correlation data corresponding to the pattern (fig. 2 demodulators receives pre-whitened signal from fig. 9 as described above, pattern correlators see fig. 2, 80-1...N);
- a threshold detector adapted to determine whether the correlation data exceeds a threshold (col. 6, lines 1-5).

Blanchard fails to disclose the correlation data exceeds a threshold and indicates that an acknowledgement signal should be transmitted if the threshold is exceeded. However, Nakada discloses an acknowledgement signal should be transmitted if a threshold is exceeded ([0043], lines 2-5). Because the use of an acknowledgement signal allows for more accurate signal reception and processing, it would have been obvious to one skilled in the art at the time of invention to incorporate the threshold acknowledgement signal as disclosed by Nakada into the invention of Blanchard. Neither Blanchard nor Nakada disclose antenna array that receives a communication signal, however, Li discloses an antenna array that receives a communication signal (fig. 4, RA1...P). A plurality of receiving antennas allows for spatial diversity which increases the reliability of a received signal. Because of this advantage it would have

been obvious to one skilled in the art at the time of invention to incorporate the multiple receivers as disclosed by Li into the combined invention of Blanchard and Nakada.

Claim 18, Blanchard further discloses the correlation data is used to compute a maximum energy level for the pre-whitened signal (col. 4, lines 19-22).

9. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blanchard et al. (U.S. Patent No. 5,764,690), Nakada (U.S. Pub. No. 2004/0077357) and Li et al. (U.S. Patent No. 7,068,628) as applied to claim 15 above, and further in view of Maeda (U.S. Patent No. 4,926,491).

Claim 16, Blanchard fails to disclose the correlation data comprises a correlation matrix, however, Maeda discloses a pattern detecting method in which correlation data comprising a correlation matrix (col. 8, lines 32-35). Because the use of such pattern recognition increases the accuracy of the receiver, it would have been obvious to one skilled in the art at the time of invention to incorporate the pattern recognition as disclosed by Maeda into the combined invention of Blanchard, Nakada, and Li.

Claim 17, Blanchard fails to disclose at least one detector is adapted to compute at least one maximum eigenvalue of the correlation matrix, however, Maeda discloses a pattern detecting method in which at least one detector is adapted to compute at least one maximum eigenvalue of the correlation matrix (col. 8, lines 32-35). Because the use of such pattern recognition increases the accuracy of the receiver, it would have been obvious to one skilled in the art at the time of invention to incorporate the pattern recognition as disclosed by Maeda into the combined invention of Blanchard, Nakada,

and Li.

10. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blanchard et al. (U.S. Patent No. 5,764,690), Nakada (U.S. Pub. No. 2004/0077357), and Li et al. (U.S. Patent No. 7,068,628) as applied to claim 15 above, and further in view of Shah et al. (U.S. Pub. No. 2006/0109779).

Claim 19, neither Blanchard nor Li disclose the pre-whitening data comprises a pre-whitening matrix, however, Shah discloses a pre-whitening matrix ([0012], line 31). Because Shah further discloses that this process allows the signal to be received without distortion ([0012], lines 12-13). Because of this advantage it would have been obvious to one skilled in the art at the time of invention to incorporate the pre-whitening matrix as disclosed by Shah into the combined invention of Blanchard, Nakada, and Li.

11. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blanchard et al. (U.S. Patent No. 5,764,690) in view of Nakada (U.S. Pub. No. 2004/0077357) and Hudson (U.S. Pub. No. 2001/0033614).

Claim 20, Blanchard discloses:

- a pre-whitening device adapted to apply pre-whitening data to a received signal to produce a pre-whitened signal (see col. 11, lines 6-13 describes elements 128 and 129 of fig. 9 provide pre-whitening, see fig. 1, fig. Shows that output of fig. 9 is sent to demodulators such as those in fig. 2);

- at least one detector that is adapted to recognize a pattern corresponding to a request for access in the pre-whitened signal and compute correlation data corresponding to the pattern (fig. 2 demodulators receives pre-whitened signal from fig. 9 as described above, pattern correlators see fig. 2, 80-1...N);
- a threshold detector adapted to determine whether the correlation data exceeds a threshold (col. 6, lines 1-5).

Blanchard fails to disclose the correlation data exceeds a threshold and indicates that an acknowledgement signal should be transmitted if the threshold is exceeded. However, Nakada discloses an acknowledgement signal should be transmitted if a threshold is exceeded ([0043], lines 2-5). Because the use of an acknowledgement signal allows for more accurate signal reception and processing, it would have been obvious to one skilled in the art at the time of invention to incorporate the threshold acknowledgement signal as disclosed by Nakada into the invention of Blanchard. Neither Blanchard nor Nakada disclose programming instructions stored on the computer-readable medium for performing the steps above, however, Hudson discloses programming instructions stored on the computer-readable medium for performing signal processing steps ([0108]). Because computer mediums are well known in the art for ease of implementation, it would have been obvious to one skilled in the art at the time of invention to incorporate the use of a computer readable medium for implementation of signal processing as disclosed by Hudson into the combined invention of Blanchard and Nakada.

Claim Objections

12. Claim 8 is objected to because of the following informalities:

Claim 8, in line 2, the *acts* should be changed to *steps*. Appropriate correction is required.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin M. File whose telephone number is (571)272-6040. The examiner can normally be reached on M-F 1:00PM-9:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Erin M. File

EMF

12/30/2006

MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER